



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

Water movement and turgor in wilting plants.—PRINGSHEIM has undertaken some important work which may be reasonably expected finally to bring us nearer an understanding of the movement of water in plants. The paper is quite long as compared with the experimental data, though this is perhaps justified by the pioneer nature of the investigation.¹¹ It seems to be quite universal in cases of wilting that the younger parts are favored in water supply at the expense of the older organs. Investigation proves that there is an actual passage of water from the basal to the apical portions, and that the latter transpire at a relatively greater rate. This movement is associated with a difference in osmotic potential between the base and the apex. The more rapid transpiration of the apical parts increases the concentration of the sap in that region, which is relieved by a movement of water to that locality. This gradient of sap-density from base to apex is correlated with a corresponding turgor gradient. Such facts lead the author to take issue with WIESNER, who has regarded a movement of water as the determining factor in the emergence of adventitious organs. In such cases the author finds an increase in the concentration of the sap in those tissues from which the new parts emerge, which of course necessitates a movement of water in that direction. The difference of osmotic potential in a wilting shoot is, qualitatively, initially present and in no case did it appear where not initially present. While the law of mass action undoubtedly operates to regulate the turgor, the author regards this an inadequate explanation for the relatively high constancy of turgor found.—RAYMOND H. POND.

Growth and respiration during winter.—SIMON has studied what he calls the separate growth functions (shooting of buds, elongation of roots, callus-formation, secondary thickening, etc.) and respiration during the period of winter rest.¹² In some cases the suspended activity is autogenous, that is, not necessitated by external conditions. This is true of buds which rest only one season. Those which rest for several seasons do so because the external conditions are not suitable for their growth. If at any time during their long rest the proper conditions are supplied, growth activity is at once resumed. Such a period of inactivity is therefore called aitiogenous. The rest of a majority of the meristematic tissues is autogenous. The reduced elongation of the root is partially autogenous, but to a greater extent aitiogenous, while callus-formation is entirely the latter. Respiration does not show a period of rest corresponding to that of the growth functions. Under favorable conditions it may be relatively intense. If the temperature be raised to about 22° C. the intensity of respiration is found at any time during the rest period to be only about 25 per cent. less than at the time of its maximum, which is during the active season of the cambium. Res-

¹¹ PRINGSHEIM, ERNEST, Wasserbewegung und Turgorregulation in welkenden Pflanzen. *Jahrb. Wiss. Bot.* 43:89-144. 1906.

¹² SIMON, SIEGFRIED, Untersuchungen über das Verhalten einiger Wachstumsfunktionen sowie der Atmungstätigkeit der Laubhölzer während der Ruheperiode. *Jahrb. Wiss. Bot.* 43:1-48. 1906.